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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,186	08/17/2001	Xiao-An Zhang	10004619-1	5243

7590 12/16/2003

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EXAMINER	
VIJAYAKUMAR, KALLAMBELLA M	
ART UNIT	PAPER NUMBER
1751	

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/932,186	ZHANG ET AL.	
	Examiner	Art Unit	
	Kallambella Vijayakumar	1751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *application filed 08/17/2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 7, 9, 11-17, 20, 26-30* is/are rejected.

7)☒ Claim(s) *6, 8, 10, 18-19 and 21-25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *8/17/01* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Detailed Action

- The application is a CIP of serial No. 09/844,862 filed 04/27/2001 and Claims 1-30 are currently pending with the application.
- The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892 and/or the applicant has provided them on PTO-1449, they have not been considered.
- The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

- Claims 6, 8, 10, 18-19 and 21-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Indication of Allowable Subject Matter

- Claims 3-10 and 18-25 would be allowable upon overcoming the claim objections, if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and/or provisional rejections under obviousness double patenting. Prior art of record neither teaches nor fairly suggestive of the limitation of the instant claims coupled with the limitations of independent and intervening claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- Claims 1-2, 5, 12, 16-17 and 27 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
    - The term "substantial conjugation" in claims 1-2, 5 and 16-17 is a relative term which renders the claim indefinite. The term " substantial conjugation " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Neither the claims nor specification provide any guidance in

establishing the metes and boundaries of this limitation, and public will not be able to practice the invention with out the burden of undue experimentation.

- The terms "relatively smaller" and "relatively larger" in claims 1 and 16 is a relative term which renders the claim indefinite. The terms "relatively smaller" and "relatively larger" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree what values of band gaps are included and what values are excluded by this limitation, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Neither the claims nor specification provide any guidance in establishing the metes and boundaries of this limitation, and public will not be able to practice the invention with out the burden of undue experimentation.
- The term "low activation" in claims 12 and 27 is a relative term which renders the claim indefinite. The term " low activation " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Neither the claims nor specification provide any guidance in establishing the metes and boundaries of this limitation, and public will not be able to practice the invention with out the burden of undue experimentation.
- Regarding claims 1 and 16, the phrase "conjugation is destroyed" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. It is not clear whether the conjugation is destroyed irreversibly and still is functional or it changes reversibly with applied filed.

Clarification and/or correction needed. See MPEP § 2173.05(d). The examiner construes this to be a reversible change upon the application of electric field for the purposes of the examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- Claims 1-2, 5, 11-17, 20 and 26-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Li et al (US Patent # 6,579,630).

Li et al teach composition of semiconducting organic compounds and optoelectronic devices containing the semiconducting organic compounds sandwiched between two electrodes, wherein upon the application of the electric field, the charge transfers take place leading to emission of light (Col-1, Lines: 45-58). The semiconducting organic compounds contain conjugated chromophores, wherein the band gap of the organic decreases from 3.42

ev to 2.45 ev with concomitant increase in conjugation resulting in the fluorescence emission of green light (Col-15, Line-66 to Col-16, Line-5, Figure-4). The instant claim limitations of a molecular system with conjugation, the band gap associated with conjugation, and the conjugation associated with charge separation/recombination in claims 1-2 and 16-17; π-bond breaking in claims 5 and 20; bi-stable, volatile switch and at least one activation barrier in claims 11-13 and 26-28 would be met inherently. The transparent and color states of the component in claims 14-15 and 29-30 would be inherent on the properties of organic compound/polymer employed. All the limitations of the instant claims are met.

The reference is anticipatory.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

- Claims (1-5, 7, 9, 11-15) are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims (1-3, 8-15, 17-18, 20-28) of pending U.S. Patent Application No. 09/844,862. Although the conflicting claims are not identical, they are not patentably distinct from each other because the both the instant claims and claims of pending U.S. Patent Application No. 09/844,862 are drawn for the "switchable-media/switch", made from the components whose compositions and properties are similar, and mere use of one composition/property over another does not patentably distinguish the instant claims from each other.

- Claims (16-17, 20, 26-30) are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims (17-18, 24-32) of pending U.S. Patent Application No. 09/898,799. Although the conflicting claims are not identical, they are not patentably distinct from each other because the both the instant claims and claims of pending U.S. Patent Application No. 09/898,799 are drawn for the "electronic ink", made from the components whose compositions and properties are similar, and mere use of one composition/property over another does not patentably distinguish the instant

claims from each other. The other related applications with obvious double patent issues would be 09/846135, 09/823,195 and 10/187,720.

Conclusion

- The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gharavi teaches opto-polymeric devices (US PG Pub# 2002,/0009274).
- Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 703-305-4931. The examiner can normally be reached on M-Th, 07.30 - 17.00 hrs, Alt. Fri: 07.30-16.00 hrs.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 703-308-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-305-3599.
- Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

KMV
12/12/2003

Mark Kopec
Primary Examiner